

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

TO THE

BRAMPTON AND WALTON URBAN
DISTRICT COUNCIL,

FOR

THE YEAR 1897.

CHESTERFIELD :

*Printed by Wilfred Edmunds, at "The Derbyshire Times" General Printing Works,
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FOR THE YEAR 1897.

GENTLEMEN,

I have the honour to present you with my sixth Annual Report on the health of your District. In calculating the birth and death-rates I have again set down the population at 2700. I think that figure may be taken as approximately correct. Although nine houses have been erected in Ashgate Road, and four in Walton Lane, on the other hand a few houses at Wadshelf and Cutthorpe have been unoccupied. The excess of births over deaths during the year was 39.

BIRTHS AND DEATHS.

During the year 69 births (38 boys and 31 girls) were registered. This is equal to a birth-rate of 25.5 per thousand, as compared with 26.2 in the previous year.

The deaths recorded during the year numbered 30. Twelve of these were males, and eighteen were females. This is equal to an annual rate of 11.1 per thousand, as compared with 13.7 in 1896.

It is extremely gratifying to be able to record such a low death-rate—the lowest in my experience as your Medical Officer. In the Borough of Chesterfield for the same period the rate was 21.5, and in England and Wales it was 17.4. Not only may the death-rate be considered satisfactory, but an examination in detail of the mortality table is equally gratifying. From it you will see that half the deaths took place at or over the age of 65. Eight of them were over 70, and one was 94. On the other hand the infantile deaths were extremely few—only three occurring under the age of one year. This gives an Infantile mortality rate of 43 per thousand births, which is a very low figure indeed. In Chesterfield the rate was 220. The causes of these infantile deaths were given as follows:—

Bronchitis	...	...	...	...	1
Diarrhoea	...	...	...	...	1
Intussusception of Bowel		...	...	...	1

The usual table is given at the end of this Report, but the causes of death may be roughly grouped thus:—

ZYMOTIC DISEASES:

Whooping Cough	2
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CONSTITUTIONAL DISEASES:

Phthisis	2
Tabes Mesenterica		1
Cancer	1
Diabetes	2

LOCAL DISEASES:

Respiratory	...	...	...	9
Circulatory	...	...	...	5
Nervous	...	...	...	1
Alimentary	...	...	...	2

DEVELOPMENTAL DISEASES:

Old Age	...	...	...	3
Violence	...	...	...	2

In each case of death from violence an inquest was held. The two deaths from Whooping Cough and one from Diarrhœa, gave a Zymotic death-rate of 1·1 per thousand.

TABLE 1.

Year.	Birth-rate.	Death-rate.	Infantile Mortality per 1000 Births.	Zymotic Death-rate.
1893	31·5	15·0	200	1·1
1894	27·2	12·2	130	1·5
1895	26·8	12·6	102	1·1
1896	26·2	13·7	126	1·4
1897	25·5	11·1	43	1·1

INFECTIOUS DISEASES.

In the early months of the year Whooping Cough was prevalent at Holymoorside, necessitating the absence of a large number of children from school. As already stated, two deaths were occasioned by this complaint. About the same time there were a few cases of Scarlatina, but these may be considered as the remnant of the epidemic we had the year before. In June, however, there was a fresh outbreak in Ashgate Road, bordering on the Borough. The first case occurred on June 5th, and, notwithstanding the precautions adopted, the complaint extended to three other houses in the same road. As Typhoid Fever has been unusually prevalent throughout the country, it is a matter for congratulation that we have not had a single case. Altogether 12 cases of infectious diseases have been notified under the Act. They were as follows:—

Scarlatina ...	...	...	...	...	9
Erysipelas ...	...	...	...	...	3

Considering how prevalent Scarlatina has been in the County, this number is by no means large.

Doubtless the epidemic we had in 1896 accounts for the comparative immunity we have since enjoyed. In each case of Scarlatina disinfectants were supplied, and the houses were afterwards fumigated.

I am asked by the County Medical Officer of Health to state if the Infectious Diseases (Prevention) Act, 1890, and the Public Health Amendment Act, 1890, have been adopted in your District. The answer is in the negative. The former Act gives power to inspect dairies, and, if necessary, to prohibit the supply of milk; to disinfect premises, etc.; while the latter act deals with a variety of Sanitary and other matters. I would suggest that copies of these Acts be obtained and submitted to the members of the Council for consideration. They can be adopted wholly or in part, and circumstances may arise when it would be useful to have the powers which they confer.

SEWERAGE WORKS.

For many years I have called your attention to the very inefficient manner in which the sewage is treated at Holymoorside, and the resulting pollution of the river. No doubt the existing works were constructed under the best available advice of the time, but they have proved to be useless, or nearly useless for the purpose intended. I think you may take it as certain that the County Council will not allow the present state of things to continue, and I am equally certain that it is futile to spend more money in attempting to improve the present system. Clay at best is a poor filtering medium, but where the sewage which has to pass through it contains a considerable proportion of dye silt, it soon becomes impervious. It is the presence of this dye-waste in the sewage which renders its treatment by the

present method so very unsatisfactory. The discolouration of the river proclaims the imperfection of your system of treatment; although the analysis of water taken from the river about a mile below Holymoorside, which I gave in my last year's Report, proves that other, and in some respects more objectionable, impurities than dye-waste find their way into the stream.

The greater part of the sewage discharges at the higher level, and is made up of two parts—

1. Ordinary Sewage.
2. Dye-waste.

The ordinary sewage is chiefly the village slop water from about 80 houses. Only one water-closet discharges into it. Your Surveyor, at my request, had measurements taken, at different hours of the day and night, of the quantity of sewage coming down to the tanks. We calculated that it amounted to about 13,000 gallons in 24 hours. As, from midnight to five o'clock in the morning, 2500 gallons were discharged, it is evident that a considerable amount of sub-soil water finds its way into the drains.

The waste dye water is of very complex constitution, and varies somewhat from day to day according to the kinds and qualities of the dye used. The daily minimum amount discharged may be taken at 2500 gallons, and the maximum at 4000—say an average of 3000 gallons. The quantity of solid suspended matter in it is about 100 grains per gallon. That is to say, when we have separated the solid from the fluid we have a daily amount of about 40lbs. of the former to deal with. This solid matter is in a very fine state of subdivision. Part of it is lighter than the fluid, and floats as a scum; but most of it is only slightly heavier than water, and consequently takes a long time to settle. When dried and

heated it loses 60 per cent. of its weight. The liquid which remains after the solids have been removed is more or less dark brown in colour, slightly alkaline in reaction, and bleaches when exposed to the air.

I have roughly described the kind of sewage—which amounts altogether to about 16,000 gallons per day. It is only fair, however, to state that Messrs. Manlove have been at considerable trouble and expense in improving the character of the dye-waste before sending it down to the Sewage Works. Some years ago they put down precipitation tanks, and more recently they have had the bottoms hollowed out to collect the sludge, and pumps erected to remove it. Various precipitants have been used. At present lime and a salt of iron are being used, and although there are many objections to lime as a precipitant, the result is fairly satisfactory. In an examination I made lately I found 94 grains of solid suspended matter per gallon in the fluid when it left the dye-works, and only 8 grains per gallon when it left the precipitation tanks after treatment. It is doubtful if results as good as this can always be counted on, but one has only to look at the large accumulation of sludge in the adjacent field to see what the Sewage Works have been spared.

In the beginning of November Dr. Barwise met some of the members of your Council at Holymoorside, and explained the scheme he proposed should be adopted in dealing with the sewage. He has since sent a plan of the works required, which was laid before you at your January meeting. For the benefit of those who were not present I will briefly describe the proposed method of treatment—mostly in Dr. Barwise's own words. The mixed sewage is received into the existing tanks, in which heavy particles like ashes, &c.,

sink ; it then passes through a scum trap, which intercepts fatty and other light matter. Next it passes through a half-inch screen, then through a quarter-inch screen, robbing it of corks, rags and other gross suspended matter. It then passes through a cage in which the alumino-ferric block is suspended, gradually dissolving it. From here it runs through the mixing race, being stirred up by the bafflers. The treated sewage then passes into the Dortmund tank, which is constructed with a conical bottom into which the sewage falls, and having a pump in the centre, by means of which the sludge can be raised without previously emptying the tank. The clarified sewage then passes to a filter having a depth of a little over four feet, and composed of crushed coal of various sizes. This constitutes what is called a breathing filter, and in the spaces between the particles of coal, the organic matter in solution is changed into harmless products by the agency of nitrifying bacteria.

This, without going into minute details, is the method of treatment recommended by Dr. Barwise. There is a difficulty in dealing with all the sewage in this way, owing to the fact that a small amount of it, comprising the drainage from the Mills and houses near, empties at a much lower level. The outfall is too low to allow of a filter between it and the river. This part must either be treated separately, or, as suggested by Dr. Barwise, it can be raised to the higher level by means of an Adams' lift, using water power for the purpose. Knowing the choking powers of dye-silt, as shown at your present works, doubts naturally suggest themselves as to whether the crushed-coal filter will work satisfactorily with such exceptional sewage. Of course, before reaching the filter the sewage, by the treatment it has undergone, is supposed to be free from all suspended matter ; but in

practice, I think, a considerable amount will escape precipitation and settlement. After the dye-waste has been treated at Messrs. Manlove's tanks, the effluent should come down to the farm free from suspended matter, but a glance at the filtering beds, or at the tank sludge, will show that what should happen and what does happen are not always the same. In order to try the effect of crushed-coal as a means of removing the suspended matter in dye-waste, and also to ascertain how long it would work without getting choked, I had a filter prepared of 20 gallon capacity, and filled with crushed-coal according to the method of Dr. Barwise, but each layer only half the depth he gives. On the surface of this fresh dye-waste was poured each day for a considerable time. The result showed that, considered as a mechanical filter, crushed-coal is a very poor medium, as quite 50 per cent. of the suspended matter passed through. The remainder collected chiefly at the surface as a scum, and after a time rendered filtration very slow. When this superficial layer was scraped, however, filtration again took place with rapidity. In practice, a layer of sand on the top of the coal would arrest suspended matter. This sand would require to be removed, and renewed from time to time.

I think there can be little doubt that the plan suggested by Dr. Barwise would be successful, and I would advise you to take steps to ascertain the cost, and proceed with construction without delay. The cost of the Adams' lift to raise the low level sewage is estimated at £125. The precipitants required would probably cost about £10 per year, and there would be extra expense for supervision. The total cost of the scheme I am unable to state. The tank suggested, or some modification of it, is at work in about a dozen places in the County,

notably at Ilkeston and Alfreton, and the crushed-coal filter is being tried at the Chesterfield Sewage works with satisfactory results.

WATER SUPPLY.

I am asked by Dr. Barwise, who is tabulating information on the subject for the whole County, "to state the conditions as to the quantity, quality, and risk of contamination of the Water Supplies of our District."

The Linacre Reservoirs, from which Chesterfield derives its water supply, are, as you know, in our District. Apart from the periodical insufficiency of water, the quality is liable to contamination from decomposing vegetation, manure from the land, and sewage from farm buildings. Analysis shows that as a matter of fact the water does receive some such contamination. This, however, is more a matter for the Chesterfield Water Board, although we are not without some responsibility in the matter. Considering the possible consequences, it is our duty to keep a specially sharp look-out for defective drains and other insanitary conditions in the vicinity of the Reservoirs. From this source in our District only 62 houses (chiefly in Ashgate and Ashgate Road) are supplied, representing a probable population of 300.

Holymoorside has an excellent water supply, and in this respect is the envy of other parts of the District. The water is obtained from the Whispering Well, and not only is the quality excellent, and the quantity abundant, but the cost is practically nothing to the consumers.

Old Brampton has a fairly good supply, chiefly from wells.

At Cutthorpe the water supply is also derived from wells—good, bad and indifferent, according to

their depth, situation, and the nature of their surroundings.

At Walton the supply is obtained partly from wells, which are mostly bad; from the spring on Walton Hill; and from the stream in the Plantation. It is here where the summer scarcity is mostly felt.

During the year I have made analytical examinations of the water from four wells, and in each case it was found to be contaminated by organic impurities. One was totally unfit for use, and in two other cases suggestions were made which have resulted in an improvement in the quality of the water.

In my Quarterly Report for September, I was able to suggest an arrangement which I had reason to believe would have been adopted by the Chesterfield Water Board, whereby, in return for your surplus water at Holymoorside, the Board would have agreed to supply Walton and Cutthorpe on advantageous terms. At the time the Chesterfield Water Authorities were in sore need of auxiliary sources of supply. You decided, however, not to take the initiative in the matter, and so nothing came of it.

DAIRIES, COWSHEDS AND MILKSHOPS REGULATIONS.

In our District no regulations have been made under the Dairies, Cowsheds, and Milkshops orders; and I think the necessity for something being done in the matter is obvious. Cows are frequently kept in the midst of filth, in houses where the ventilation is insufficient, and the drainage defective. At present we have no special control over these matters. The subject is one of considerable importance, as the health of children in their earlier years may be seriously affected by

an impure milk supply. In cows suffering from tuberculosis the milk frequently contains tubercle bacilli ; and it has been experimentally proved that milk thus infected can produce the disease in animals fed on it. As illustrating the need for some bye-laws on the subject, I may mention two cases, brought to my notice by your Inspector, where new cowsheds have been built of insufficient size. In one case the cubic capacity is 2376 feet to accommodate five cows, or 475 c. feet per cow. In the other case the total capacity is 3402 c. feet, to accommodate sixteen cows, or 212 cubic feet per cow. As these houses were built on the old sites no plans came before the Council. The cubic space required in Chesterfield is 800 feet per cow. In Sheffield the same figure is adopted for new cowsheds, and 500 feet for existing ones. It is often a hardship to interfere too much with existing arrangements, but we certainly should have the power to ensure that all new cowsheds are erected according to modern requirements. The County Medical Officer in his Annual Report for 1896 gives a code of Model Regulations, and I would suggest that these or some modification of them should be adopted in your District.

The general health of the District has been good : the death-rate has been low ; and the Sanitary condition may be considered fairly satisfactory. So far these favourable conditions extend into the present year.

Appended is a summary of the work done by your Inspector of Nuisances. As in former years a large number of minor improvements have been effected without formal notice. One nuisance has been unusually conspicuous during the year. Chesterfield largely uses Brampton and Walton as a dumping ground for its night-soil, and the Contractor, to save trouble, has frequently made

heaps of it in close proximity to the road. Your Inspector has on more than one occasion called his attention to the matter, but after a time the offence is repeated. Next time the nuisance occurs I would suggest a prosecution.

I am, Gentlemen,
Your obedient servant,
JAMES A. GOODFELLOW.

16th Feb., 1898.

Table of POPULATION, BIRTHS, and of NEW CASES OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health, during the year 1897, in the BRAMPTON and WALTON Rural District, classified according to Diseases, Ages and Localities.

State here whether "Notification of Infectious Disease" is compulsory in the District. Yes. Since when? 1st February, 1894.

state here the name of the Isolation Hospital used by the sick of the District. Mark (H) the Locality in which such Hospital is situated; and if not within the District, state where it is situated

TABLE OF DEATHS during the Year 1897, in the BRAMPTON and WALTON Urban District, classified according to Diseases, Ages, and Localities.

Names of Localities adopted for the purpose of these Statistics; public institutions, being shown as separate localities.		Mortality from all causes, at subjoined ages.										Mortality from subjoined causes, distinguishing Deaths of Children under Five Years of Age.																																					
		At All ages.					Under 1 year.					1 and under 5.					5 and under 15.					15 and under 25.					25 and under 65.					65 and upwards.					Fever.					Diseases, &c.					Total.		
B R A M P T O N	AND	30	3	3	2	2	6	14																																									
W A L T O N	.....																																															
TOTALS	.....	30	3	3	2	2	6	14																																								

Area in Acres....., 9,852.

Population, 1891.....2,532.

Estimated, 1897.....2,700.
Date, 17th February, 1898.

Medical Officer of Health, JAMES A. GOODFELLOW.

Summary of Sanitary Work done in the Inspector of Nuisances' Department during the Year 1897 in the Derbyshire portion of the Urban Sanitary District of Brampton and Walton.

			Inspections and Observations made.	Informal notices served by Inspector.	Legal Notices by Authority.	Nuisances abated after Notice.
DWELLING-HOUSES AND SCHOOLS—						
Foul Conditions	...	...	...
Structural Defects	...	...	...
Overcrowding	...	...	...
Unfit for Habitation	...	...	...
Lodging Houses	...	...	...
Dairies and Milkshops	...	...	...
Cow Sheds	...	...	...
Bakehouses	...	...	...
Slaughterhouses	...	monthly visits				
Canal Boats	...	...	...
Ashpits and Privies	...	...	...	13	8	10
Deposits of Refuse and Manure	...	...	...	6	3	6
Water Closets	...	...	...
HOUSE DRAINAGE—						
Defective Traps	...	...	18	8	10	17
No Disconnection	...	...	10	0	10	10
Other Faults	...	...	6	6	0	6
Water Supply	...	...		
Pigsties	...	...	1		1	1
Animals improperly kept	...	...	1		1	1
Offensive Trades	...	...		
Smoke Nuisances	...	...		
Other Nuisances	...	...		
TOTALS	...	57	25	30	51	

Samples of Water taken for Analysis 4
 .. , , condemned as unfit for use 1

PRECAUTIONS AGAINST INFECTIOUS DISEASE.

Houses disinfected after Infectious Disease 5
 Method of Disinfection adopted Fumigation by Sulphur

Has Infectious Diseases Prevention Act, 1890, been adopted?—No.
 Has Public Health Amendment Act, 1890, been adopted?—No.